REMARKS

This is in response to the Office Action that was mailed on October 16, 2006. Claims 1-2, 4-14, and 16-18 are pending in this application. Claims 1, 13, 17, and 18 are amended to specify that a surface of the organic thin-layer of the transfer layer faces only the side of the substrate having the transparent conductive layer formed thereon, based upon such disclosure as that in the specification from line 28 on page 28 to line 7 on page 29. Claims 1, 13, 17, and 18 are also amended to reverse a previous amendment which expressly specified that the entire organic thin-film layer is transferred to the receiving surface of the first laminate. No new matter is introduced by this Amendment.

Formal rejection

Claims 1, 13, 17, and 18 were rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement. Office Action, page 2. As mentioned above, claims 1, 13, 17, and 18 have been amended to reverse a previous amendment which expressly specified that the entire organic thin-film layer is transferred to the receiving surface of the first laminate. As such, this rejection has been rendered moot.

The invention

The present invention provides a method for producing organic thin-film devices, such as organic electroluminescence devices that are usable for plate light sources such as full-color displays, backlights and illumination light sources, and light source arrays of printers. Significant distinguishing features of the present invention include the steps of: peeling a temporary support from a laminate structure to transfer an entire organic thin-film layer to a receiving surface of the laminate; and bonding another laminate (which is a rear-surface electrode or a transparent conductive layer formed on a substrate) to the organic thin-film layer that was transferred onto the laminate structure. In the bonding step, heating is carried out by a laminator, an infrared heater, or a roller heater.

<u>*Rejection over Wolk*</u>

Claims 1, 2, 4-14, and 16-18 were rejected under 35 U.S.C. § 102(b) as being anticipated by US 6,194,119 B1 to Wolk et al. ("Wolk"). Office Action, pages 3-7. The Wolk patent corresponds to WO 00/41893, which is discussed on page 3 of Applicant's specification. The rejection is respectfully traversed.

As recited in claim 1 herein, the present invention requires at least the following three steps:

(a) heating and/or pressing a transfer material having an organic thin-film layer formed on a temporary support and a first laminate comprising a substrate and at least a transparent conductive layer or a rear-surface electrode formed on the substrate, which overlap each other such that ***a surface of*** the organic thin-film layer of the transfer material ***faces*** only ***the side of the substrate*** having the transparent conductive layer formed thereon, thereby forming a laminate structure;

(b) peeling the temporary support from the laminate structure to transfer the organic thin-film layer to the receiving surface of the first laminate; and

(c) bonding a second laminate comprising a substrate and at least a rear-surface electrode or a transparent conductive layer formed on the substrate to the organic thin-film layer transferred onto the first laminate, wherein the heating is carried out by a laminator, an infrared heater, or a roller heater.

That is, significant and distinguishing features of the present invention include (1) peeling a temporary support from a laminate to transfer an entire organic thin-film layer as a surface of the organic thin-film layer of the transfer material to a receiving surface of the laminate, and (2) bonding another laminate (which comprises a substrate and at least a rear-surface electrode or a transparent conductive layer formed on a substrate) to the organic thin-film layer transferred onto the laminate structure, wherein the heating is carried out with a laminator, an infrared heater, or a roller heater.

In contrast, Wolk teaches a method for patterning a first material and a second material on a receptor – by selectively and simultaneously thermal transferring the first material proximate to the second material on the receptor donor, the first donor element comprising a substrate and a light-to-heat conversion layer disposed between the substrate and the first material and the first material. The Wolk method involves selectively expositing the first donor element to imaging radiation. In Wolk, the materials can be coated onto thermal transfer donor elements to form the transfer layers of the donor elements, and then the transfer layer materials can be patterned via selective thermal transfer from the donor to a receptor, the transfer layer being transferred to the receptor, without transferring any of the other layers of the thermal transfer element such as an optional interlayer and an LTHC layer, using a heating element that contacts the thermal transfer element. Column 5, lines 47-51; column 7, lines 37-40; column 8, lines 36-37. Thus the Wolk technology clearly is different at least from features (1) and (2) of the present invention mentioned above.

It is emphasized that the transfer material in the present invention comprises two components – an organic thin-film layer, and a temporary support upon which the organic thin-film layer is adhered. See the specification, page 6, lines 13-14, and page 19, lines 15-17. See also Applicant's Figure 1. The organic thin-film layer, which is a layer constituting the organic thin-film device, including a light-emitting organic thin-film layer, an electron-transporting organic thin-film layer, a hole-transporting organic thin-film layer, an electron-injecting layer, a hole-injecting layer, etc., depending on their characteristics. See the specification, page 8 lines 7-11. The transfer of a surface emitting device is carried out herein by heating with a laminator, an infrared heater, or a roller heater. See the specification, page 5, lines 6-8, and page 28, lines 15-27. This produces a surface emitting device which has excellent light-emitting efficiency and which is manufactured with high productivity at low cost. The organic thin-film layers in the present invention are remarkably thinner than are thin-film layers obtained by thermal transfer methods employing a laser. This results in excellent uniformity of light emission in the present invention. Specification, page 46, lines 21-27.

Thus claim 1 herein is manifestly not anticipated by the Wolk disclosure. Claims 2 and 4-12 are likewise patentable, at least by virtue of their being dependent from claim 1.

Claim 13 herein requires:

> A method for producing an organic electroluminescent device comprising the steps of (a) heating and/or pressing a transfer material having an organic thin-film layer formed on a temporary support and a first laminate comprising a substrate and at least a transparent conductive layer or a rear-surface electrode formed on said substrate, which overlap each other such that a surface of said organic thin-film layer of said transfer material faces only the side of said substrate having said transparent conductive layer formed thereon being intended to form a receiving surface, thereby forming a laminate structure; (b) peeling said temporary support from said laminate structure to transfer said organic thin-film layer to said receiving surface of said first laminate; and (c) bonding a second laminate comprising a substrate and at least a rear-surface electrode or a transparent conductive layer formed on said substrate to said organic thin-film layer transferred onto said first laminate, wherein the heating is carried out by a heating means selected from the group consisting of a laminator, an infrared heater, and a roller heater.

Thus, claim 13 requires the same steps as claim 1, so that claim 13 (and claim 14 which depends therefrom) are distinguished over the Wolk disclosure at least for the same reasons as is claim 1, which reasons are discussed in detail above.

Claim 17 herein requires:

> A method for producing an organic thin-film device comprising the steps of (a) heating and/or pressing a transfer material having an organic thin-film layer formed on a temporary support and a first laminate comprising a substrate and at least a transparent conductive layer or a rear-surface electrode formed on said substrate, which overlap each other such that a surface of said organic thin-film layer of said transfer material faces only the side of said substrate having said transparent conductive layer formed thereon being intended to form a receiving surface, thereby forming a laminate structure; (b) peeling said temporary support from said laminate structure to transfer said organic thin-film layer to said receiving surface of said first laminate; and (c) bonding a second laminate comprising a substrate and at least a rear-surface electrode or a transparent conductive layer formed on said substrate to said organic thin-film layer transferred onto said first

> laminate, wherein the heating and/or pressing is carried out by at least one of a laminator, an infrared heater, and a roller heater.

Thus, claim 17 differs from claim 1 primarily only in reciting "wherein the heating and/or pressing is carried out by at least one of a laminator, an infrared heater, and a roller heater" in place of "wherein the heating is carried out by a heating means selected from the group consisting of a laminator, an infrared heater, and a roller heater" as in claim 1. Accordingly, claim 17 distinguishes over Wolk for reasons discussed above in connection with claim 1.

Claim 18 herein requires:

> A method for producing an organic electroluminescent device comprising the steps of (a) heating and/or pressing a transfer material having an organic thin-film layer formed on a temporary support and a first laminate comprising a substrate and at least a transparent conductive layer or a rear-surface electrode formed on said substrate, which overlap each other such that a surface of said organic thin-film layer of said transfer material faces only the side of said substrate having said transparent conductive layer formed thereon being intended to form a receiving surface, thereby forming a laminate structure; (b) peeling said temporary support from said laminate structure to transfer said organic thin-film layer to said receiving surface of said first laminate; and (c) bonding a second laminate comprising a substrate and at least a rear-surface electrode or a transparent conductive layer formed on said substrate to said organic thin-film layer transferred onto said first laminate, wherein the heating and/or pressing is carried out by at least one of a laminator, an infrared heater, and a roller heater.

Thus, claim 18 differs from claim 13 primarily only in reciting "wherein the heating and/or pressing is carried out by at least one of a laminator, an infrared heater, and a roller heater" in place of "wherein the heating is carried out by a heating means selected from the group consisting of a laminator, an infrared heater, and a roller heater" as in claim 13. Accordingly, claim 18 distinguishes over Wolk for reasons discussed above in connection with claim 13.

Based on the foregoing, withdrawal the anticipation rejection based on the teachings of Wolk is respectfully requested.

Rejection over Shibata

Claims 1, 2, 4, 7-14, 17, and 18 were rejected under 35 U.S.C. § 102(e) as being anticipated by US 2002/0127877 A1 to Shibata et al. ("Shibata"). Office Action, pages 8-12. The rejection is respectfully traversed.

Shibata discloses a method for producing an organic thin film device by: causing an organic thin film 112 of a transfer material 110 face a transparent electrically conductive layer 102 disposed on a support 101, the transfer material 110 having the organic thin film 112 on a temporary substrate 111; decompressing a space 105 between the transfer material 110 and the transparent electrically conductive layer 102 to bring the transfer material 110 into contact with the transparent electrically conductive layer 102; heating at least one organic thin film 112; and peeling the temporary substrate 111 from the organic thin film 112 to transfer the organic thin film 112 to the transparent electrically conductive layer 102. See Abstract and Figure 1 of Shibata.

Applicants do not controvert the Examiner's view that Shibata discloses transferring an organic thin film under heating and pressing conditions using a laminator. However, Applicants emphatically disagree with the Examiner's contention that paragraph [0062] in Shibata disclosed "bonding a ***second*** ... layer ... formed on said substrate to said organic thin-film layer transferred onto said first laminate." Office Action, page 8, emphasis supplied. What Shibata actually teaches in paragraph [0062] is

> In the present invention, the organic thin film [i.e., 112] is formed by the peeling-transfer process. In the peeling-transfer process, the organic thin film [i.e., 112] is softened by heating and bond[ed] to the [trans]parent electrically conductive layer [i.e., 102] or the other organic thin film, and then, the temporary substrate [i.e., 111] is peeled off from the organic thin film [i.e., 112] to transfer and leave only the organic thin film [i.e., 112] thereonto. Heating may be achieved by means of a laminator, an infrared heater, a thermal head, etc.

A significant distinguishing feature of the present invention lies in providing an organic thin-film device by bonding a second laminate comprising a substrate and at least a rear-surface electrode or a transparent conductive layer formed on the substrate to the organic

thin-film layer transferred onto the first laminate, whereas Shibata discloses merely the transferring of the organic thin film without bonding thereof onto the second laminate.

As such, the presently claimed invention is neither taught nor suggested by the Shibata disclosure and withdrawal of the rejection is respectfully requested.

Conclusion

The rejections of record are not sustainable with respect to the invention presently claimed. Withdrawal of all rejections – and passage of this application to Issued, are earnestly solicited. If there are any questions, the Examiner is respectfully requested to contact Richard Gallagher (Registration No. 28,781) at (703) 205-8008.

Dated: April 16, 2007

Respectfully submitted,

By ______ #42535 for

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